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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/649,499	08/28/2000	William F Jones	26242.00	8209

22465 7590 02/27/2004
PITTS AND BRITTIAN P C
P O BOX 51295
KNOXVILLE, TN 37950-1295

EXAMINER

LU, TOM Y

ART UNIT PAPER NUMBER

2621

DATE MAILED: 02/27/2004

9

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/649,499

Applicant(s)

JONES, WILLIAM F

Examiner

Tom Y Lu

Art Unit

2621

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 January 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3,4,6 and 8-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 3,6,11 and 12 is/are allowed.
- 6) ☒ Claim(s) 1,4,9 and 13 is/are rejected.
- 7) ☒ Claim(s) 8 & 10 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

DETAILED ACTION

Response to Amendment

1. The amendment and written response filed on January 12, 2004 has been entered.
2. Claims 2, 5 and 7 are cancelled.
3. Claims 11-13 are newly added.
4. Claims 1, 3-4, 6 and 8-13 are pending.

Response to Arguments

5. Applicant's arguments filed on January 12, 2004 have been fully considered but they are not persuasive.

The Horbaschek Reference:

Applicant argues the limitation of "data collected by a positron emission tomograph device" is not same as the data collected by an X-ray tube in the Horbaschek reference. In addition, applicant argues Horbaschek's system does not perform the transformation from the primary coordinate system to the secondary coordinate system in *real time*. In summary, applicant argues the Horbaschek does not anticipate all the elements cited in the independent claims.

Upon further review of specification, in light of applicant's arguments, the examiner respectfully disagrees for the following reasons. First, the X-ray tube and positron emission tomograph device both are image-acquiring devices used to obtain X-ray images. Positron emission tomograph produces electronic X-ray image data. In Horbaschek's system X-ray tube also produces digitized data because the data is inputted to computer, and computer can only process digital data. Therefore, the data collected by the X-ray tube in Horbaschek is the same as the data collected by the positron emission tomograph device. If applicant insists the image-acquiring device needs to be PET, then the examiner prepares to cite a new reference in the following office action to show that the PET

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is an alternative to the X-ray system. With regarding to the limitation of "real time", the examiner would like to direct the applicant's attention to figure 1, as the data 9 and 10 comes into computer, the data is immediately processed to be transformed from one coordinate system to another with no delay. Therefore, such transformation process is a real time process.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1, 4, 9 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Horbaschek et al (U.S. Patent No. 4,937,848) in view of Avinash (U.S. Patent No. 6,556,720 B1).

- a. Referring to Claim 1, Horbaschek discloses a first digital pipeline latch for receiving said data (Horbaschek at column 3, lines 35-36, discloses position data is outputted from X-ray tube 1, and transmitted through a line 31 to a computer 11. The lines connected between numeral 13 and multipliers 14-17 inside computer 11 as shown in figure 1, are the claimed "digital pipeline latch"); a plurality of multipliers disposed in parallel, each of said plurality of multipliers for receiving and multiplying a portion of said data to generate a product simultaneous with each other of said plurality of multipliers (Multipliers 14-17 as shown in figure 1 receive data from first pipeline latch); a second digital pipeline latch for simultaneously receiving said product from each of said plurality of multipliers (the lines connected between multipliers and adders are the claimed "second digital pipeline latch"); a plurality of adders disposed in parallel, each of said plurality of adders for receiving and

summing a plurality of said product from said plurality of multipliers (adders 20 and 21 sum up the outputs from multipliers 14-17); and a third digital pipeline latch for receiving data from said plurality of adders (lines between numeral 22-23 and the adders are the claimed "third digital pipeline latch"), said data being representative of a pair of transformed coordinate points from a primary coordinate system to a secondary coordinate system (data output from adders are A_h and A_v . A_h and A_v are in rectangular coordinate as described at column 4, lines 25-26, which is the claimed "secondary coordinate system". The input data is in polar coordinate as described at column 4, line 30, which is the claimed "primary coordinate system"); whereby as said data is input to said first digital pipeline latch, said product of said data from an immediately previous said event is input to said second digital pipeline latch and completely transformed data from a second immediately previous said data is input to said third digital pipeline latch, and whereby said event data is transformed from said primary coordinate system to said secondary coordinate system in real time (as the data 9 and 10 comes into computer in figure 1, the data is immediately processed to transform from one coordinate system to another with no delay. Therefore, such transformation process is a real time process.). However, Horbaschek does not explicitly disclose said data is collected by a positron emission tomograph device. Avinash at column 4, lines 60-64, teaches using a positron emission tomograph device to acquire image data. At the time the invention was made, a person of ordinary skill in the art would have been motivated to use a positron emission tomograph device to obtain electronic X-ray image instead of an X-ray tube because

Avinash at column 4, lines 60-64, clearly teaches positron emission tomograph is an alternative to the X-ray system.

- b. With regard to Claim 4, all limitations are addressed in Claim 1.
- c. With regard to Claim 13, the difference between Claim 4 and Claim 13 is Claim 13 calls for additional limitation of “normalizing said data”, where Avinash at column 5, lines 44-45 teaches normalizing the raw values acquired for the pixel defining the image.
- d. Referring to Claim 9, Avinash discloses before said step of multiplying selected groups of said data in said plurality of multipliers, and after said step of normalizing said data, further comprising the step of histogramming said data (Avinash at column 7, lines 32-37, also in figure 6, teaches histogram the image data which has been normalized. Note the normalization process is performed on raw image data. Therefore, it is before the data being inputted to multipliers in Horbaschek’s system)

Allowable Subject Matter

7. Claims 8 and 10 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

8. Claims 3, 6 and 11-12 are allowed.

The following is an examiner’s statement of reasons for allowance:

- a. Independent Claims 11 and 12 both define equations used to produce transformed coordinates from the primary coordinate system to the secondary coordinate system. These equations in combination with other features in Claims 11 and 12, which are the broadest allowable claims, are not taught or suggested by the art of record.

- b. Claim 3 is dependent upon Claim 11.
- c. Claim 6 is dependent upon Claim 12.

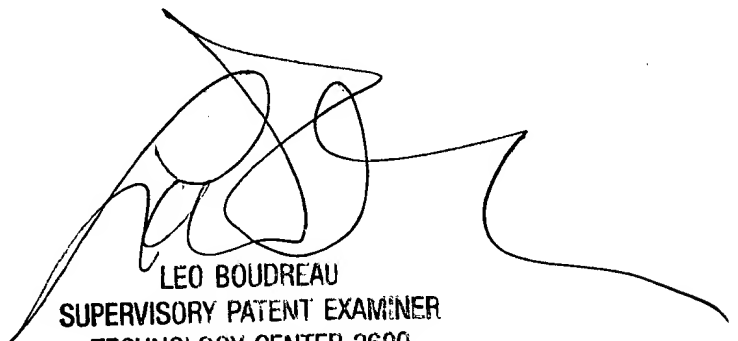
Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tom Y Lu whose telephone number is (703) 306-4057. The examiner can normally be reached on 8:30AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Leo H Boudreau can be reached on (703) 305-4706. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Tom Y. Lu



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